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THE ZOOLOGIST:

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OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CXCVI.

LONDON:

JOHN VAN VOORST, PATERNOSTER ROW.

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A MUSEUM has been formed at Weymouth for the express purpos of illustrating the Natural History of the British Isles, both as regards the Faun and also the Flora. It at present contains several species of Birds, a complete Colle tion of British Shells, a nearly-complete Collection of Stalk-eyed Crustacea and Echin dermata, the same of Eggs, and a *very small* commencement in Entomology. complete Collection of British Ferns and Algæ have been promised.

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WILLIAM THOMPSON, *Hon. Sec.*

Weymouth, October 15, 1858.

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Bats flying in the Sunshine.—Whilst walking on Box Hill, last Sunday afternoon, the 12th inst., I was surprised to see more than a dozen very large bats on the wing, circling around with a lofty and rapid flight, like that of the great Noctule. The day was clear and warm, and, although it was nearly six o'clock, the sun was shining brightly, and the whole face of the hill was strongly illuminated, yet the bats were apparently as much at home in the sunshine as the swallows, which were sporting about in their neighbourhood, but at a respectful distance. As I believe it is unusual for the Noctule to appear so late in the season as September, or indeed for any of our bats to come out in such bright weather, I shall be glad to inquire if some one among your correspondents can tell me to which species these animals are likely to belong. I did not hear them utter any cry.—*E. W. H. Holdsworth; 26, Osnaburgh Street, September* 16, 1858.

Contributions towards a Biography of the Red Grouse.

By the Rev. J. C. ATKINSON, M.A.

FOR several years past I have had continued opportunity of frequenting one of the best and most abundantly stocked moors in Yorkshire; and, partly from love of the wild freedom of the moor, and partly because the moor affords me short cuts to several different parts of a very wide and straggling parish, I have availed myself of the opportunity aforesaid at all times of the year, and, perhaps it is hardly necessary to add, much more frequently without a gun than with. It may be that some of the observations I have made on occasion of these moor rambles may not be uninteresting to some of the readers of the 'Zoologist;' and I have therefore given an hour or two to the compilation of the present paper, hoping that, though in the eyes of the savagely scientific it may take no higher rank than that of a "dish of gossip," it may yet be as acceptable to the lover of living birds as that sort of light food usually is to its customary consumers.

The red grouse, or, as they are almost universally named here, moor-bird, pairs very early. I have seen them coupled—not universally of course, but still so commonly as to be much more than simply noticeable—by the 20th or 21st of December. Last winter they had paired before the old year was out, and by the middle of January they had, almost universally, formed their annual union. But the match so early made is very often broken off, at least in appearance, under the pressure of cold and hunger. The last day, a Sunday, in January this year was a very cold day, with snow on the ground and still falling. As I went over the moor to a district of the

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parish two miles distant from my residence, I saw the grouse in packs of thirty or forty each. Up to two or three days before they had been seen in pairs, and that too, as I have just said, from before the commencement of the year. I remarked to an acquaintance I met with as I descended from the moor,—"We shall get some hard weather now: I saw the grouse packed as I came across the moor." And surely the frost and snow did come, and in earnest. It was some time after this before the final pairing, that which was destined not to be again interrupted, took place; perhaps, fully three weeks. During the whole of this interval the partridges continued paired. I think it was on the 5th of February, a bitter cold day, with several inches of snow on the ground, I went down the beck, thinking it not improbable I might fall in with a duck or two. In the course of my walk I saw or came upon the traces of fourteen several pairs of partridges; and neither on that day nor on any other during the continuance of the cold weather did I see more or less than two together. Once, about a week later, while the snow was still lying thick on the ground, I saw the footmarks of three together; but I did not see the birds themselves, and should have little doubt that they were three "old bachelors."

During the pairing-time fierce fights between the male birds are of continual occurrence, and one can scarcely set foot on the moor without seeing signs of conflict. One of the most common is one cock pursuing another with eager pertinacity; and so absorbed are both in the passions of the moment that not unfrequently they cross once and again in close proximity to the spectator, in the course of their rapid wheeling flight, without appearing to heed his presence. When the spring is somewhat more advanced the grouse may be seen close to the road-side, and they are then seldom much disturbed by the passage of the traveller. Sometimes they do not take wing at all, and their flight, if they take one, is seldom to any distance. They are in full plumage at such times, and the beautiful crimson crest of the male is very conspicuous, and very fully displayed as he stands with his head up and his eye on the passer-by. The short flights of the male are also usually terminated by an upward movement of a few feet, and the utterance of his peculiar note or "crow" as he alights on some little hillock or other eminence on the surface of the water.

The number of eggs laid by the grouse is much less than in the case of the partridge. It may also be remarked that it is considerably more difficult to ascertain the number of a brood of grouse than in the case of a covey of partridges. The latter commonly all rise together; grouse do not while still less than full-grown, and, when full-grown, seldom live or move much together as partridges in covey do. My own impression is that seven or eight young birds is more than a full average brood. Last season's hatch was an unfavourable one.* One day, about a week before the season came in, I gave an old dog of mine a run over part of the moor, and in the course of my walk I saw two broods of seven or eight, several of five or six, and a great many more of two or three. A deserted nest I walked over contained seven eggs, and I should say that a nest containing fourteen or fifteen eggs (see Yarrell, ii. 317) is very rare indeed.

The young birds, while still quite small, like the young partridge and peewit, show great readiness in concealing themselves. You may disturb a brood of little grouse, and see them "squandering," as folks say here, in all directions. The one or two you happen to have fixed your eye on, or otherwise "marked," may be picked up easily enough. The search for the others, however, except on very unfavourable ground —unfavourable, I mean, to the bird from want of roughness or cover —will most likely be baffled. They hide themselves in a marvellous way, squeeze between objects that seem to forbid all passage, worm their way amid the cover,—unless, indeed, the cause of alarm is very close to them, in which case they lie like stones, and without a dog it is in vain to think of finding them after the first minute or two of alarm and dispersion.

I have already noticed that, unlike the covey of partridges, the brood of grouse seldom rises *en masse*. Very constantly—at least after the young birds can in a degree shift for themselves by flight, but still are far short of full growth—the old cock is the first to rise. On the first sign of an intruder, whether man or dog, he appears to take the hint, and begins to beat a retreat. He runs perhaps twenty or thirty yards or more, and then takes wing, often at a very safe distance from the gun, if there be one. The hen, on the other hand, remains with her brood. She *may* rise the first, when flight becomes necessary, but just as often it is a young bird which leads the way: it seems to depend on the chance which causes either the pointer or the man to stumble on this or that particular bird. The others continue quiescent until "found" in their several turns, and unless two or three happen to be laid close together it is seldom that more than one, or possibly two, rise together. The young birds, when about three-quarters grown, will often run a long way through the ling, and at other times, and very frequently early in the season, lie so close that it is very difficult to induce them to fly. Indeed, they are often taken up by hand to save them from the dog, who, if young, is apt to be misled by their pertinacious quiescence into giving them a nip with his jaws. When lying in this way it is no easy thing to detect them in their concealment. But all this becomes utterly changed in the course of a very few weeks. On the 27th of August, last year, I killed 15½ brace in three or four hours' shooting, in spite of indisposition so severe that I was obliged to lie down several times after discharging my gun. I might have doubled the number killed, easily. Scarcely one month later the gamekeeper, having orders to send away thirty brace within a week, was out almost daily himself for eight days, and was assisted on two days by an under-keeper and myself. On one of these two days, Sept. 22, I was out for four hours, and, having no cartridges with me, was only able to get three or four grouse. From this time to the end of the season a dog is of very little use on these moors, except for the purpose of finding a wounded bird. An old dog who will keep at heel, and not be very eager to range, is therefore all the sportsman takes; and it is but seldom he can walk within thirty yards of a grouse on the open moor. Now and then, to be sure, he may walk upon one; but if he wants to make a bag he must get birds as he can, by the use of the cartridge and by means of a species of stalking, or by "driving" the moor.

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* This was written very early in July. The same remarks, however, will apply, word for word, to the present season, and to the numbers of the broods I saw in the course of one or two similar walks taken this year.

I do not think this wildness of the grouse is to be accounted for simply on the ground that the birds have been often disturbed or harassed. (See Yarr. ii. 318). This moor has been very little shot since I have known it, and some years a great proportion of the birds might scarcely hear a gun fired very near them; and yet all became equally wild every year. Indeed, this year they became very wild in August, and I believe up to the present date, Sept. 13, have never been very easily accessible. A slight and early snow sometimes has the effect of rendering it more easy to approach them, at least for a few hours; but, ordinarily, the most extreme cold, and a covering of snow a foot thick, does not appear to tame them at all. Under such circumstances they collect in enormous packs, and betake themselves to some particular part of the moor, it may be to a hill-edge, or where, from the conformation of the surface, the snow may have been driven off to a greater or less extent.

I have seen a wounded grouse dive beneath the snow, and conceal itself among the ling below. One I knew thus concealed was discovered by the shooter dropping the cartridge he was proceeding to load with, and on stooping to pick it up finding it had fallen almost or quite upon the bird.

An old bird will often run a long way before taking flight, and when wounded, if not followed immediately, will run quickly and silently away to a great distance. If pursued at once, he runs awkwardly, and with a great deal of noise and disturbance, and is easily caught; unlike the partridge, whose speed is great enough to baffle even a fleet human pusurer.

Grouse frequently fly some considerable distance over the enclosures, from one part of the moor to another. I was one day walking by the beck-side, a full mile at least from the moor on either hand, when I heard the note of the grouse. Looking up, I saw two flying at a great height above me, I should think 500 or 600 feet at least. The total length of their aërial trip could not have been less than two miles. Last winter, again, I saw from fifteen to twenty fly over my premises, scarcely out of gun shot. Their flight, probably, was little less in length than in the other case.

They may constantly be seen alighting on a wall, and cackling or crowing there. I have seen this at all times of the year, but it is more frequently observable when the influence of the breeding στοργὴ is upon them. Then the cock bird, if an intruder comes near, often flies to some little eminence or a wall, if there be one near, and crows, and raises his head in watchful observation of the stranger.

It is very remarkable, about the time the general hatch draws on, how all grouse-life seems to have ceased on the moor. A few days before the observer would have seen a great number of birds, principally cocks, as he crossed the moor; now he may walk for an hour without seeing more than a bird or two. I have this year traversed certain parts of this moor for miles, and not seen half-a-dozen grouse in the course of my whole walk; while at a somewhat earlier period the same walks would have probably showed me thirty or forty pairs. The objects of such close concealment of themselves are sufficiently obvious.

Grouse do not here often descend far from the moor on to the cultivated land. They may sometimes be seen, early in the morning, in such corn-stubbles as are close upon the verge of the moor. If, however, the stubbles are on the same level as the moor, and merely separated from it by the enclosure-fence and not by any portion of intervening "bank," it is no unusual thing to see them at feed. There were one or two such stubbles in my beat last year, and I more than once saw grouse, ringdoves and pheasants at feed in such close proximity to one another that they were quite intermingled. It is a familiar fact, which the gamekeeper often avails himself of when desired to furnish a supply of grouse late in the season, that just about daybreak they are found in some numbers, and less wild than an hour or two later in the day, close on the edge of the moor bordering on the enclosures. These officials will tell you that the moor birds are then on their return from the enclosures where they have been feeding.* If a grouse be found on the cultivated land in the day-time, it is usually a sick or wounded bird, or a greatly terrified one. I have known a grouse dash into a thick hedge fully a mile distant from the moor, and lie there to be picked up without making an attempt to escape. No signs of injury were discernible upon it, and on being liberated some hours afterwards—the next day, in point of fact—it flew away at once, and with nothing unusual in any way perceptible in its conduct. Probably it had been pursued by a hawk, and in the excess of its terror had sought the first possible means of concealment and safety that offered itself. No hawk was visible, but that might possibly be accounted for by the circumstance that the observer's attention was engrossed by the dash of the grouse and its capture quite long enough to permit the hawk to withdraw himself from inspection.

On the subject of the "grouse disease," or the "tapeworm" as it is diversely called, I have no remarks to offer. I have scarcely ever seen a bird suffering from this destructive malady on these moors, and I think I only shot one or two last year which showed signs of any disorder. A draggled tail, rusty plumage, and poor condition, tell the tale of disease very intelligibly, and a sick bird is not easily overlooked. Indeed, almost before he gets on the wing infirmity shows itself in the heavy, laborious efforts and flight of the invalid. I was told by peat-cutters and others that after the very heavy rains which fell about the middle of August, last year, a great many moor birds might be seen drowned in various parts of the moor, and they inferred that these birds had been weakened by the tapeworm. The inference might be good, but it was not altogether satisfactory. The rain was something extraordinary in its violence and duration, and the birds, if weakened at all, might have been weakened by other things save the disease, want of water for instance, under which, in all probability, multitudes of young birds perished both last year and this.

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* For my own part, I doubt if they feed much before daylight, but not that they visit the enclosures at the time mentioned.

I have seen grouse tower, and frequently. Still there seems to be a material difference between the grouse and the partridge in this respect, — a difference including two main particulars, viz., that they tower much less frequently, or, to express my meaning in a more exact manner, a much smaller proportion of the total birds killed towers, and that those that do tower do not rise to anything like the same height as the partridge. I have seen the latter bird often go up seventy or eighty or even a hundred yards, and sometimes apparently even much higher than that. I never saw a grouse, however, rise higher than, I should say, thirty or thirty-five yards. Again, I hardly ever saw ten brace of partridges killed without seeing some of them tower, and not very unfrequently I have seen both the birds killed by the successive discharge of the two barrels perform the evolution in question. On the other hand, I have often seen twelve or fifteen brace of grouse killed, and not observed a towering bird among them. This I cannot help looking upon as remarkable, as the birds of the two species are shot at under precisely similar circumstances: both rise from the ground, both fly at much the same general elevation above the ground, and in much the same sort of way; and it seems very difficult to account for the discrepancy observable between them in this particular. In the case of rooks, shot, as they usually are, with the gun almost vertical, I am not surprised that towering rarely occurs, or in the case of other birds fired at when flying so as to cause the gun pointed at them to have anything but a horizontal direction; for I feel convinced that towering is occasioned by an injury in some part, wherever that part may be, which can be but rarely reached by shot fired from much below the level at which the bird is flying. I once "towered" a partridge which was shot just as it passed over my head from behind; but it was so near to me that some of the pellets must necessarily have been driven with force sufficient to make them pass quite through the most solid parts of the bird's body.

One other peculiarity I have often noticed in the wounded grouse, viz., that it falls as if shot dead, or at all events so severely that death shall ensue almost immediately; and yet, after lying, perhaps quite motionless, during the whole time occupied in recharging, on your approaching to "bag" them they will get up and fly away as if nothing had happened. Once, last season, a bird dropped to my gun. As it did not remain motionless, but continued to work its way along the ling, I supposed it was only winged. Just as my attendant was leaving me to pick it up, it reached a space of bare ground, took wing, flew below the little hill I stood on, and was lost. I might mention many other such instances. A partridge sometimes acts in, apparently, a somewhat similar way; but I cannot recal a single case in which I noticed it in the partridge in which I did not also notice that the bird had been wounded in the head by the discharge before which it had fallen, and was very likely blinded, at least on one side. I do not know whether this peculiarity in the ways of the grouse may not be accounted for on the ground that, being a much larger bird than the partridge, and clothed with harder and thicker plumage, a blow which would serve to disable the latter would only be sufficient to stun the former.

More facts, and more interesting in the biography of the grouse, might no doubt be collected by one who had the time at his command necessary for systematic observation. I have only tried to record what I have observed casually and from time to time.

J. C. ATKINSON.

Occurrence of the Norfolk Plover and the Ruff near Barnstaple. — I have recently seen a specimen of the Norfolk plover (*Œdicnemus crepitans*), which was shot last January, on the Braunton Burrows; and I have in my possession a ruff (*Machetes pugnax*) which was shot there a winter or two back, — rather a westerly locality. — *Murray A. Mathews; Raleigh, near Barnstaple, September* 6, 1858.

[The locality is a new one for both species; but Mr. Mathews does not mention the still more remarkable fact of these birds occurring in the winter. I have always regarded them as merely summer visitors in Britain, arriving at the end of April and leaving in September.—*E. Newman.*]

Occurrence of the Spotted Crake (Gallinula porzana) *near Richmond, Yorkshire.*— A fine male specimen of the spotted crake was found dead, a few days ago, at Ellerton Abbey, a few miles from Richmond. There are, I believe, few instances of its having been observed in the North Riding of Yorkshire.—*Henry Smurthwaite; Bank, Richmond Yorkshire, September* 24, 1854.

The Red and Willow Grouse.—Mr. Gould, in a conversation about these birds, has this instant told me that the adult Lagopus Saliceti has *invariably* white wings: I am not at liberty to repeat any opinion Mr. Gould may have offered as to the distinctness of the two supposed species; but this mere matter of fact he permits me to use as I please: prior to attaining adult plumage the young birds' wings are coloured similarly in both grouse.—*Edward Newman; September* 27, 1858.

The Red and Willow Grouse. — I have no hesitation in saying that I think the willow grouse quite distinct from the common grouse. The short thick bill, stouter tarsi, and white wings, are quite sufficient to distinguish the willow from the common grouse. The eggs I have seen of the willow grouse are also quite different from those of our common bird. — *Frederick Bond; 24, Cavendish Road, October* 11, 1858.

The Red and Willow Grouse.—The question mooted by Mr. Norman regarding the identity of these two (so-called) species is undoubtedly very interesting, and I trust the subject will receive the attention it deserves, and be thoroughly worked out by those who have had the fullest opportunities of making the necessary comparison. I have no wish or intention of putting forward my own opinion on the matter, nor will I venture to express my crude thoughts on a subject, with the positive facts of which I can speak with so little accuracy; but perhaps I may be permitted to state one particular, which came under my notice in the year 1850, when I shot the willow grouse in Norway in considerable numbers, and which, in fact, for a certain period formed the principal item in our daily bill of fare; for it struck me at the time as something remarkable that whereas all the old birds which passed through my hands had white wings, the young and the half-grown birds as invariably had their wing-feathers coloured: moreover, I now possess, amongst the many skins of these birds which I brought home to England, several immature specimens of every age and size, from the chick lately emerged from the shell, which I caught with my hands among the rocks on the Fjeld, up to the full-grown adult; and I have now before me a case of these birds, old and young, the latter of which, up to the point when they are about three-parts grown, show no white whatever in their wings, the quill-feathers being invariably coloured, whereas the older birds, as well as the adult, have invariably white wings. This fact I recollect pointing out to my friend Mr. Alfred Newton, in 1852, since which time that gentleman has made his own observations on the same point in Norway and Lapland; and if he could be prevailed on to state the result of his experience on the point, I know of no one more entitled to be listened to with attention, or more likely to arrive at an accurate conclusion on the point in debate. As regards the size of their respective beaks, I have nothing to offer beyond my impression that the beak of the willow grouse is not larger or stronger than that of the red grouse, though here I speak with considerable hesitation, not having a specimen of the red grouse at hand with which to compare my Norwegian birds. But again, in discussions of this kind, regarding the identity of supposed species, one very tangible point is the comparison of a sufficient series of their respective eggs, as suggested by Mr. Norman in his former paper (Zool. 6209), and surely this must be a matter of no difficulty, when we consider the numerical abundance of both birds: I regret that I did not bring home from Norway specimens of the egg of the willow grouse, but I doubt not many others must have done so, and I trust that some one who has the opportunity will communicate this strong argument for or against the verdict of identity; for I conceive that in a dispute of personal identity (notoriously a subject which, above all others, puzzles judges and juries and the whole bar), whereas on the one side a perfect similarity of eggs would be a great link in the chain of evidence for the identity of the supposed species, on the other hand an uniform dissimilarity of eggs would at once prove an insurmountable barrier against such identity. I therefore repeat that I trust this comparison will be instituted, and the result made known, while the question is pending; and I earnestly hope that the whole very interesting inquiry will not be suffered to drop till it has been thoroughly investigated, and the advocates for both sides fully heard. — *Alfred Charles Smith; Yatesbury Rectory, Wilts, October* 12, 1858.

Red and Willow Grouse.—I am much pleased to find that Mr. Newman invites (Zool. 6243) Messrs. Doubleday, Bond, Salmon and Wolley to give their views on the identity of our red with the willow grouse; by this means the question will stand a good chance of being thoroughly investigated, and an ornithological question of the very highest interest solved. Since my last communication appearing in the 'Zoologist' I have received a private letter from a correspondent, who writes as follows, touching the colour of the wings, &c.:—"I have examined many of these birds (willow grouse) killed in summer, and have found that although the wings are, as you describe them, more or less of a 'tawny brown,' yet the quills are invariably white, and the reason appears to me pretty plain: these quills are moulted but once a year, while nearly all the rest of the feathers are changed twice, if not three times." The same gentleman also states that he has compared the bills of the red grouse with those of the willow grouse, and that larger bills were by no means constant to the latter; indeed he found an old male red grouse with a larger bill than that of our old male willow grouse, which had the longest of the series. These facts, coming from a gentleman of much experience in the matter, I look upon as being of great value. At any rate, it appears I have been in error in describing the colour of the wings of those I flushed in the Dovrefjelds; still I cannot understand how the wings should appear brown, if the quill-feathers were white; the vibrations of the wings during flight would scarcely account for the appearance.—*G. Norman; Hull, October* 15, 1858.

Occurrence of the Marsh Harrier on Pevensey Levels.—Mr. Albert Vidley, of this town, shot on Saturday, October 2nd, in Pevensey Marshes, a remarkably fine specimen of the marsh harrier (*Falco æruginosus*); it was in very fine plumage. The crop was very much distended with the remains of a bird, apparently a moorhen. Mr. V. says he has often seen them in the Marshes, but never shot one before. The same indefatigable naturalist brought me to-day, for inspection, a fine lesser blackbacked gull (*Larus fuscus*), shot by one of his father's men, the day before, in Pevensey Bay. —*John Dutton; South Street, Eastbourne, October* 12, 1858.

Occurrence of the Spoonbill near Aldborough. — A white spoonbill (*Platalea leucorodia*) was shot at Thorpe Mere, near Aldborough, Suffolk, on the 29th of September: it is a young bird; it measures 36 inches in length, and the bill is 8½ inches in length; the crest on the head is wanting; the upper plumage is dull white; the shafts of the feathers and margins dusky brown, with the shafts and tips of the quill-feathers black. This is the first occurrence of the spoonbill in this neighbourhood for several years: one was shot on the same marsh in 1848; I am not aware of any since.—*Edward Neave; Leiston, near Saxmundham, Suffolk.*

Occurrence of the Wood Sandpiper near Birmingham.—A specimen of the wood sandpiper (*Totanus glareola*) was shot a few miles from Birmingham (at Barr), on the 26th of August: the bird is a male, and was, by the gentleman who shot it, presented to Mr. Charles B. Hodgson, of this town, in whose possession it now is. I am not aware that this bird has before been observed in this district.—*Henry Buckley; Church Road, Edgbaston, Birmingham, October* 15, 1858.

Occurrence of the Glossy Ibis in Dorsetshire.—One day last week a boatman shot, in the immediate neighbourhood of Wareham, in the meadows opposite the Priory, a specimen of the glossy ibis (*Tantalus falcinellus*, Penn.): it has been purchased by C. O. Bartlett, Esq., of Wareham, and is now in the hands of Mr. Hart, of Christchurch, for preservation. It will be remembered that Yarrell records one killed in

Poole Harbour in 1839: Wareham is situated at the head of Poole Bay.—*William Thompson; Weymouth, October* 5, 1858.

Occurrence of the Pomarine Skua (Lestris pomarina) *at the Land's End.*—This species of skua has appeared with us frequently, but in some seasons they are more abundant than in others. Generally their plumage exhibits an uniform brown tint, more or less edged with reddish brown, according to the age of the bird. I have just examined a very perfect specimen of an adult bird, killed within the last few days at the Land's End. The crown and sides of the head and the whole of the upper parts are of a deep uniform bluish black; the back of the neck, throat, upper parts and sides of the neck white, striated with yellow; the breast, sides and belly to the vent pure white, a few indistinct spots of brown disturbing this colour on the sides of the breast; the vent and under tail-coverts dark brown. The two middle tail-feathers were unfortunately lost.—*Edward Hearle Rodd; Penzance, October* 16, 1858.

Note on a Bird and on a Quadruped, both found in Natal, and both said to prey upon Serpents. By JOHN HENRY GURNEY, Esq., M.P.

THE following extract from a letter, which I have recently received from Natal, may perhaps interest the readers of the 'Zoologist.' The bird referred to would appear by the description to be the Abou-Gamba of Abyssinia (*Bucorvus Abyssinicus*); the quadruped may probably be a species of Ichneumon.

The letter from which the extract is taken is written by Mr. Thomas Ayres, of D'Urban, Natal, a collector from whom I have received much curious information and several very good ornithological specimens, well prepared, and at moderate prices, and whom I can therefore recommend to the notice of any naturalists requiring specimens from the Colony of Natal.

J. H. GURNEY.

Catton Hall, Norwich,
October 7, 1858.

"That which follows with regard to the habits of the undermentioned bird is on Caffre authority, which I consider very good.

"This bird I have forgotten to mention before, but I daresay you are acquainted with it; it is generally called here the Turkey buzzard (a misnomer I have no doubt), from its resemblance to a turkey; some call it the snake bird, because it lives entirely on snakes and other reptiles: it is the size of a large turkey; general plumage black, with a large patch of white on the wing; the front of the neck is bare of feathers; the skin hangs down, and is of a bright red colour, similar to that of the turkey; the bill is about nine inches long and black, is curved, sharp-pointed and large, similar to the stork's, and has a knob, or is larger at the top near the head, similar to some of the hornbills; the legs are short, but this bird jumps so quickly and so far that, if only winged, it is almost impossible to catch him on foot. Their habits are somewhat curious; they generally hunt in company from four to eight or ten together, feed almost entirely on snakes, and do not hesitate to attack those of the largest and most venomous kinds in the following manner: on discovering a large snake three or four of the birds advance sideways towards it, with their wings stretched out; with the quill-feathers they flap and irritate the snake till he seizes them by the wing-feathers, when they immediately all close and give him a violent peck with their long and sharp bills, immediately withdrawing again, when the snake leaves his hold; this they repeat till the snake is dead; if the reptile advances on them they place both wings in front of them completely covering their heads and most vulnerable parts.

"There is also a small animal here, something like a polecat, which kills large venomous snakes (some eight to twelve feet long) in a curious manner: when he finds the reptile has left his hole he enters and awaits its return; the instant the snake puts its head in, the cat seizes him by the upper part of the neck, not leaving his hold till the snake is dead: he then bites the snake into many pieces, laying them together carefully in a heap, but seldom eats them: he then struts about with hair erect, seemingly much pleased with the feat he has accomplished.

"I have perfect confidence in what the Caffres tell me, as they have every opportunity of seeing and knowing the habits of many animals and birds; but of course when my information is from them I shall tell you."

Occurrence of Rare Birds near Banff. By THOMAS EDWARD.

A specimen of the spoonbill (*Platalea leucorodia*) was seen near this place last spring: it frequented the same spot for nearly three weeks.

During the past summer a specimen of the bee-eater (*Merops apiaster*) was observed by three different individuals at a place called the Hills of Boyndie, about two miles from Banff.

Three specimens of the curlew sandpiper (*Tringa subarquata*) were seen to frequent a part of our coast for several days towards the end of August last: one, a male, a very fine specimen, was procured.

A hoopoe (*Upupa epops*) was shot by the Duke of Richmond in Glen Fiddoch, one of his Grace's deer forests, on the 21st of September.

Four bartailed godwits (*Limosa rufa*) were seen about six weeks ago.

A specimen of the brown snipe (*Scolopax grisea*) was met with on our sands on Saturday afternoon, the 25th of September. When first observed it was feeding amongst some dunlins and ringed dotterells: there were also a few golden plovers. It is rather a rare circumstance to see these birds on our coast at this season of the year; but confound these ringed dotterells,—they are almost as bad as the curlews; for there is no getting an easy shot at a stranger when once it gets associated with them: they are eternally on the look out for squalls, and when anything does appear they generally alarm everything near them. A shot, however, after a good deal of winding and turning, was fired, and although at pretty long range, broke at least one of the snipe's legs; this had the effect of parting him from his companions, as they all flew seaward, and he to a ride of shingle which intervenes between the sands and links. Here he alighted or rather fell, for he tumbled as he came down, seemingly to rise no more. Having reloaded, in case of need, I then ran, as well as I was able, to pick him up, gained the spot, and after a little trouble found my bird stretched out at full length amongst the pebbles,—a corpse, as I thought. And what a most beautiful specimen he was!—apparently an old bird. It was now that I was made fully aware of what I had really shot at, and what a valuable prize I had got, or rather met with. I laid down my gun, and sat down myself, being almost intoxicated with delight, and having taken some cotton wadding from my pocket to wrap round the injured leg and stop up any other wound he may have received, I took him up for that purpose; but, alas! too sanguine fool that I was to lay my gun aside so soon. It is a true saying that "there's many a slip 'twixt the cup and the lip:" I have experienced it often, and here I was doomed to it again. Away flew the bird, having actually slipped through my very fingers, whilst about to lay him on my knee. I looked, but what like I really cannot tell; but what was the use of looking? What else could I do? Well, I fired both barrels as soon as I got hold of my gun, and sitting as I was too. But what of that?

Why I was just in the very nick of time to be too late. Away went the bird, his shattered limb dangling the while, and whistling as he flew, but whether in derision of my stupidity, or exulting in his own most miraculous and fortunate escape, I know not. One thing, however, I observed,—that his whistling was not unlike the call of the redshank (*Totanus calidris*) when suddenly disturbed. Having flown about a hundred yards or so, he again settled amongst some low-lying rocks. I was in doubt as to whether I should follow: it was now gloming, and betwixt my own weakness and anxiety I was more like an aspen leaf than anything else. Follow, however, I did, having first reloaded, and was just about giving up the pursuit as hopeless, when he rose from beneath my feet. Both barrels were again emptied, but with little apparent effect: the last made him scream somewhat harshly and falter for a little in his flight, but that was all. Darkness now put an end to any further operations for that night, and caused me to return home a much disappointed and rather sorrowful being. Next day, however, and for many days afterwards, I was again out; but although the coast has been searched for miles on either side of the place where the bird was last seen, no traces of him can be obtained; and thus it may be said has been lost one of the greatest ornithological rarities which has visited us this many a day, for doubtless he has died of his wounds, and will rot unheeded in some hidden and unknown spot. I am not aware that this species was ever met with here before.

THOMAS EDWARD.

Banff, September 28, 1858.

Migratory Birds in the Isle of Wight.—The following dates were observed this year at Bembridge:—

SUMMER BIRDS FIRST SEEN.

March 24. Wheatear (20th at Sandown); Chiffchaff. Wind E., light.
April 1. Swallow. Wind N.E., cold.
„ 6. Swallows (several).
„ 9. Redstart, Willow Wren, Whitethroat, Cuckoo, Blackcap. Wind E.N.E., cold.
„ 10. Titlarks (numerous), Nightingale, Yellow Wagtail. Wind S.E.
April 13. Sandwich Tern. Wind S.E.
„ 14. Sand Martin. Wind S.E.
„ 16. Wryneck.
„ 20. Whinchat.
„ 30. Swift.
May 4. Turtle Dove.
„ 5! House Martin.
„ 6. Common Sandpiper.
„ 6 to 8. Flycatcher.
„ 11. Grasshopper Warbler.

WINTER BIRDS LAST SEEN.

April 1. Turnstone.
„ 13. Brent Goose.
„ 17. Black Scoter.
„ 26. Tufted Duck.
„ 27. Redthroated Diver (several).
„ 28. Great Northern Diver.

May 4. Greenshank.
„ 12. Curlew.
„ 11 to 13. Bartailed Godwit.
„ 15. Whimbrel.
„ 30. Gray Plover, Dunlin.

The remarkable features of the above list seem to be the early date of the beginning of the migratory movement, and the great numbers of certain species among these early arrivals; for instance, the swallow and sand martin were reported in the 'Times' newspaper to have been seen at Dorchester on the 31st of March, and the 1st of April is an equally unusual date in the Isle of Wight. At Bembridge, on the after noon of the 9th of April, the bushes along the sea-shore were literally swarming with small warblers, principally willow wrens; while redstarts, generally quite uncommon birds with us, were so abundant for a week all over the island as to have attracted the notice of the least observant. May not these birds have been driven from their intended course by the severe weather which then prevailed in the interior part of the Continent? If at least they were a detachment that should have dispersed itself over France and Germany, but upon this occasion preferred a more westerly route, within the influence of the milder temperature of the sea-coast, this might serve to account for the few days difference in the date of their arrival with us. The pause which afterwards ensued before the coming of the main body of birds was equally striking. After the first pioneers had left us (as they did within a week) it was long before their place was filled by fresh arrivals, and swallows did not, in the Isle of Wight, become plentiful until nearly the middle of May. Coincident with this unusual lateness of the main body of swallows was the visit of a flock of bartailed godwits that was first noticed on the 11th of May, and remained on our mud flats for several days: as far as was observed, only three of the number had yet assumed the bright bay colour; one of those that I shot was in perfect summer plumage, and two or three stragglers met with in Sandown Bay had also very nearly or quite completed their moult; these red birds were all found to belong to the male sex. The gray plover seen on the 30th of May was perfectly black beneath, being quite similar to another solitary individual of the same species obtained last year, on the 8th of May.—*A. G. More; October* 5, 1858.

Occurrence of the Short Sun-fish (Orthagoriscus Mola) *near Banff.*—A specimen of this rather rare and somewhat singular-looking creature was captured, on Monday last, by a boat's crew belonging to Whitehills, one of our fishing villages: it was found floating on the surface, seemingly in a state of repose, and suffered itself to be taken on board in that condition. After it was in the boat, however, it began to show life, and floundered about dreadfully, much to the annoyance of the fishermen, who were somewhat afraid of it, on account of its odd appearance, never having seen anything of the kind before. Amongst several parasites (Crustaceous) found upon it, are three specimens of Tristoma coccineum; and, from the gills, no fewer than nineteen female Cecrops Latreillii were taken, and each, except three, had a male attached; some of the females were more than an inch in length, whilst some of the males were not above an eighth of that length: so peculiarly and firmly attached are the males of this species to the females, and so like a portion of their own bodies, that it would be no difficult matter to mistake the two for one: there were no males found, but those on the females. A monster "Carldadie," as we call it here, or ribwort plantain (*Plantago lanceolata*),—a somewhat strange and peculiar-looking specimen of this common plant,—was met with lately near Banff: it is a well-known fact, for almost every child knows it, that this plant is single-flowered, and that the flower-stalk grows up entirely destitute of leaves, these adhering solely to the root: in this case, however, it was different, there being no fewer than thirteen leaves and three flowers on the top of a single stem: the stem was nineteen inches in height, and very stout.—*Thomas Edward; Banff, October* 8, 1858.

Occurrence of the Immaculate Wrasse at Weymouth.—I have to record the capture of a specimen of the immaculate wrasse (*Labrus carneus*, of Bloch): it was taken by my relation, Mr. Edward Kynaston, whilst fishing with me at the back of the Portland Breakwater, on the 27th of September last: we were fishing for whiting pout, with shrimps for bait. This is the second specimen that has occurred to me; the other, which was also obtained in Weymouth Bay, I recorded on the 10th of October, 1853. The specimen last obtained I have preserved in spirits, and have deposited in the Weymouth Museum.—*William Thompson; Weymouth, October* 5, 1858.

The Loves of the Slugs (Limax cinereus).—I know not whether you may remember that, about fourteen or fifteen years ago, having observed (as I then thought) a most anomalous method of copulation with some of the Limaces (Limax cinereus), I inquired if you could inform me of any work in which it was described, it being so very singular that I hesitated to send you a description of it; but having had this summer some opportunities of observing it again, and verifying my former notes, it seems that it is the normal mode of copulation, with that species at least. I now forward it to you for insertion in the 'Zoologist.' In the supplementary part of Cuvier's 'Animal Kingdom' (Griffith's edition), vol. xii., Mollusca, p. 325, it is stated, "Their general activity increases according to the temperature. It is generally about the end of spring and in summer that they seek each other for the purpose of reproduction. We know but little respecting the particulars of their intercourse. They are hermaphrodites, and give and receive impregnation at the same time. The organs of generation are situated near the neck. * * A very short time after intercourse, and generally in the month of May or June the Limaces lay eggs." Towards midnight, in the close, sultry summer nights, from June to September, a couple of Limaces may be observed slowly following each other, with the mouth of the second resting on the tip of the tail of the first, as it may be termed (the extreme point of the foot). I have not been able to ascertain whether it takes hold of the tip with its mouth, or merely rests upon it, but from the equable motion of the two I should expect the former was the case, the second following every sinuosity of the tortuous course taken by the first, without the least deviation, for a considerable time (I watched one pair upwards of a quarter of an hour without any alteration in their relative positions); they then ascend some wall, or other perpendicular surface near where they happen to be; when they finally stop the second crawls up alongside the first; they then crawl around each other circularly, during which time they emit a large quantity of mucus, which forms a patch two inches to two and a half inches in diameter: as soon as the mucus has acquired a sufficient consistence, they begin to twist around each other, and detach themselves from the wall,* hanging only by a cord formed of the thickened mucus; as they hang suspended, they still keep twisting themselves around each other, forming a double spiral; they continue this turning motion ten minutes or more, until at last their bodies can hardly be distinguished from each other, thus forming a regular cone about two inches in length and the base one or two inches in diameter, hanging from its apex; during this time the mucous cord keeps lengthening slowly (in one instance it reached about fifteen inches in length; I have not seen any less than eight or nine inches); the organs of generation are then protruded from their orifice near the mouth, and, hanging down a short distance, touch each other; they then commence the same spiral motion, twisting round each other, resembling a two-stranded cord. When fully protruded they cannot be distinguished; the lower part then assumes various forms: the first I saw resembled an inverted flat-topped agaric, the portion forming the stem being about two inches in length and two or three lines in diameter, the top being about an inch and a half across: others have formed an ovoid mass suspended in like manner, covered with foliated processes similar to those of a foliated Murex or a leaf of curled parsley; at this time they form a very beautiful object, especially when they hang from some projecting surface, which enables them to swing clear without touching the wall; the dark shell-like substance hanging pendant from a white shining cord, one line in thickness, below which hangs another white semi-transparent body, the delicately striated surface of which shows all over it; a continuous vermicular motion; the foliated expansions, continually changing their form or being withdrawn in places and shooting out afresh in others, giving out occasionally an iridescence, as the light falls upon the ever-varying surface. After remaining a considerable time in this position (the vermicular motion continuing without intermission) the generative organs separate, and when nearly withdrawn, the bodies untwist themselves and separate; they then crawl up the suspending line and depart. I suppose the reason why they have not been previously observed is, that it always takes place late at night: I have never observed them before eleven o'clock, but generally about midnight. If persons observe, where the slugs abound, circular patches of slime on the walls, formed during the previous nights (being so much more in thickness than the shining tracks they make, they are not obliterated for two or three days), they may be sure that by attentively observing them the next sultry nights, they will most probably be able to verify the foregoing statement of facts.—*James Bladon; Pont-y-pool, September* 30, 1858.

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* I have not been able to observe the actual separation from the wall, my attention being unfortunately called off for a minute or two from them; in the case in which I had an opportunity of tracing the whole process from commencement to end, I left them when they were forming the circular patch of mucus, and when I returned they had just left the wall and were commencing the secretion of the suspending cord.

Notes on two Crustacea new to Britain. By J. R. Kinahan, M.D., Secretary to the Dublin Natural-History Society.

Platyarthrus Hoffmanseggii, *Brandt.*

On the third of last month I received from my friend the Rev. A. R. Hogan, a letter containing specimens of an Oniscoid, found by him in ant-hills of Formica rufa and allied species, near Weymouth, and which has been up to this time unnoticed in Britain, and but meagrely described on the Continent.

The curious companionship of Isopod Crustacea and Ants was, I believe, noticed for the first time by M. H. Lucas, in the case of an Oniscoid found by him at Medeah, in Algeria, in company with Formica testaceo-pilosa, and which he has recorded under the name of Porcellio myrmecophilus, in a paper in the 'Revue et Magasin de Zoologie,' p. 335, 1855, intituled "Observations sur deux Nouveaux Genres de Coleoptères (Oochrotus et Merophysia) qui vivent dans les four milières des Formica barbara et testaceo-pilosa." I may remark, in passing, that a careful examination of type-specimens of this species, kindly afforded me by the discoverer, has satisfied me that it does not belong to Porcellio as restricted by Brandt; and I have therefore, with M. Lucas's permission, established a genus Lucasius for it, and hope shortly to describe it more fully as Lucasius myrmecophilus, along with a number of new and undescribed genera of the group.

The Isopod sent me by Mr. Hogan proves to belong to the genus Platyarthrus, established by Brandt in his 'Conspectus Monographia Oniscodorum,' and is probably identical with the species, P. Hoffmanseggii, *Br.*, there noted by name only (which is, I believe, identical with Itea crassicornis, *Koch.*), as M. Lucas kindly gave me, when in Paris, specimens identical with Mr. Hogan's, which he had obtained in abundance in the ant-hills of Formica rufa, at Fontainbleau, near Paris, and which is therefore most probably identical with the species found by Brandt in Germany.

The following descriptions have been drawn up from the specimens:—

Genus Platyarthrus, *Brandt.*

Body flattened. Head transverse; lateral and frontal lobes well marked, arising from third ring. Internal antennæ inconspicuous, three-jointed. External antennæ seven-jointed. Peduncle,—second joint lobed internally; fifth broad and flattened (whence name of genus). Filament two-jointed; basal joint minute, rounded, nearly concealed by fifth joint of peduncle; terminal joint rounded and scabrous (Brandt failed to perceive the basal joint, and hence misdescribed the antennæ as six-jointed). Abdominal rings,—coxæ of first and second obsolete. Telson (terminal ring),—coxa obsolete, triangular. Posterior pleopods articulated to inferior margin of telson. Peduncle completely exposed. Accessory lobe well marked. Accessory appendage rounded. Ischium flattened, trigonal.

Species PLATYARTHRUS HOFFMANSEGGII, *Brandt.*

Cephalothorax and abdomen covered with numerous rounded granules, the margins of the wings distinctly crenulated through them. Frontal lobe of head arched, fringed with coarse hairs, extending over the entire front. External antennæ densely scabrous and tuberculated. Eyes small, situated at external angle of head. Telson triangular, with a shallow pit above its margins, slightly excavate; posterior margin fringed with hairs and tubercles. Last pair of appendages,—peduncle subrotund, sides parallel, its superior margin distinctly crenulated, scabrous. Accessory lobe arising from inferior margin of peduncle. Accessory appendage curved and rounded, barely attaining to apex of peduncle. Ischium scabrous, terminating in a filament, equalling the peduncle in length.

The specimens sent were all whitish gray. Mr. Hogan states that the species is very active, does not roll, but merely feigns death when alarmed, and conceals itself very rapidly.

CRANGON PATTERSONII.

During some dredging researches in Belfast Lough, last August, an undescribed species of shrimp occurred to me, which I wish to record under the above name.

Rostrum nearly as long as the eyes, rounded at end, concave above. Carapace with three rows of spines, viz., one median of three spines, and one on each branchial region which bifurcates as it passes upwards. Abdominal rings,—first to fourth smooth; posterior margin of fifth ring produced medianly into a triangular knob; sixth ring flattened above; telson (last ring) lanceolate, sulcated above; the fourth to sixth rings narrow suddenly, as in C. fasciatus.

The species is closely allied to C. spinosus, which differs in having a narrow rostrum acute at end, and the rings of the abdomen from the first to the fifth carinated. These distinctions hold good even in small specimens. The specimens obtained were male and female, the latter with ova; they occurred in from ten to fifteen fathoms, in black sand, in the same locality. Crangon Allmanni and Crangon spinosus also occurred. I have named it after Robert Patterson, M.R.I.A., President of the Belfast Natural History Society.

JOHN ROBERT KINAHAN.

Seaview Terrace, Donnybrook,
October 11, 1858.

Occurrence of Vanessa Antiopa in the North.— A fine specimen of the Vanessa Antiopa was seen in my garden at Blackwell, near Darlington, the end of last month (August), and a local paper mentions that one was caught not far from Guisborough, about the same time. I have heard of others which have been lately captured or seen in different parts of this county, as well as in Yorkshire. This butterfly is only an occasional and rare visitor to our county (Durham). The 'Zoologist' for 1848 contains a notice of a pair taken at Bishop Auckland that year, and I possess a specimen which was found many years ago floating on the river Tees. While on the subject of this insect I wish to correct the observation of a correspondent in the 'Zoologist' for 1843, that the white-bordered Antiopa is not found in Switzerland. I have myself met with both kinds, the white and yellow-bordered, in that country. Since I last wrote I have received a specimen of the Vanessa Antiopa, taken on the 20th inst., in my garden at Blackwell: it would be curious if it could be proved to be the same that was seen there nearly a month ago.—*John Church Backhouse; Blackwell, near Darlington, September* 21, 1858.

Occurrence of Colias Edusa at Darlington.—A male of the Colias Edusa was taken a few days ago at Darlington, a butterfly by no means common with us, even in those seasons when it is thought most to abound.—*Id.*

Larva of Erebia Blandina.—This year, for the first time, I have succeeded in obtaining a few eggs, which hatched about fourteen days after they were deposited, and the larvæ are now [October] feeding freely on several species of Poa. They have undergone their second moult, and may be described as pale green, with a dark green or brownish stripe down the back, and two white ones, narrowly bordered by the same dark colour, on each side. In the lower white stripe on each side are the spiracles. The posterior extremity is attenuated and slightly furcate, as in the other larvæ of the family.— *George Wailes, in a Catalogue of the Lepidoptera of Northumberland and Durham*, p. 11.

Larva of Erebia Cassiope.—Pale green, with numerous darker green longitudinal lines shaded into the ground-colour, and with a well-defined white line along each side in the region of the spiracles. The larvæ feed upon Poa annua and Festuca ovina, though I suspect, in a state of nature, they live on the young leaves of Nardus stricta or some of the smaller Junci which constitute the principal herbage of the mountain sides where the insect is met with.—*Id.*, p. 12.

Larva of Satyrus Semele.— Duponchel states that the larva of Satyrus Semele does not suspend itself after the usual manner of the Satyridæ, but excavates a little hole in the ground, in which it undergoes its metamorphosis after, the manner of a Noctua. Mr. Logan has verified this observation.—*E. Newman.*

Polyommatus Artaxerxes and Agestis.—I think it is due to the readers of the

'Zoologist' that they should be made fully aware of the grounds upon which Polyommatus Agestis and Artaxerxes are considered one species, as there seems to be still a considerable amount of scepticism upon the subject: I must beg leave, therefore, to recapitulate a little. In the first place, there is no appreciable difference either in structure or markings; the differences being absolutely limited to the colour of the discoidal spot on the upper side, and the greater or less distinctness of the pupils to the ocelli beneath. Every good naturalist knows that colour, unaccompanied by difference of structure or marking, is of very little value in the discrimination of species; and if we admit it in this instance, we must also consider the Scotch variety of Cœnonympha Davus as a distinct species, along with many other Scotch insects which differ in colour from the same species as found in the South of England. Secondly, the description of the larva of Agestis will serve also for that of Artaxerxes or *vice versâ*. Although I have not yet seen the larva of Agestis alive (the larvæ forwarded by Mr. Harding having been those of Hypera fasciculata, and one true Agestis larva which Mr. Doubleday kindly sent me having produced several Microgaster cocoons on its way here), I have seen a beautiful drawing of the larva of Agestis by Mr. Standish, which Mr. Doubleday kindly sent me; and, as far as one can judge from a drawing, the two larvæ are the same. Again, the larva of Agestis can no longer be said to feed exclusively on Erodium, if indeed this is its usual food-plant, Mr. Gregson having found it on Helianthemum, which, added to the obesrvations of Mr. Walker (Zool. 6248), leaves no room to doubt that Agestis is at least as much attached to Helianthemum vulgare as it is to Erodium cicutarium. The habits of the two with respect to pupation are also essentially the same; as though Artaxerxes when near the base of a rock, or when confined in a box, sometimes fastens its pupa by a silken thread across the body, it does not always do so, and the pupa is frequently found on or in the earth beneath the plants. Although a matter of secondary importance, I may mention that the little white cocoons of Microgaster from the Agestis larva belong apparently to the same species as that which infests the larva of Artaxerxes. Mr. Crewe says that he is "an utter unbeliever in what are called permanent varieties or races." He surely does not mean this to apply to the whole of nature; and if we have permanent races in the human species, in many of the higher animals, and in other orders of insects, I do not see why they should not exist also among the Lepidoptera. The conviction that they do so exist is becoming every year more strong with me; and I believe that not only are modifications in colour, size, &c., frequently hereditary, but also variations in habits; and this in cases where there can be no reason to doubt the identity of the species, or to suppose that the facts tend to support the theories of Lamarck. — *R. F. Logan; Duddingston, Edinburgh, October* 13, 1858.

[Is not the supposition that Polyommatus Agestis feeds on Erodium a mere mistake, arising from an individual larva having accidentally been found by Professor Zeller wandering from its food-plant?—*E. Newman.*]

Polyommatus Artaxerxes and Agestis.—When I wrote a reply to Mr. Logan's paper, in the June number of the 'Zoologist,' I hoped that it would have produced some fact to prove that the two species were one and the same, but it appears that those parties have no fact to produce. Mr. Newman certainly has made a mountain of a mole-hill regarding my mistake, and has it seems quite forgotten the main question,—are the two species one and the same? Yes, says Mr. Newman, I had that opinion twenty-five years ago; and it appears that since that period he has not taken one step in advance in this matter; at all events he has not told me of any. I should have been much pleased if Mr. Doubleday had given us his opinion, for he received some of the larvæ of P. Agestis from me; but again, Mr. Newman states that I leave untouched the evidence of the present year. In answer to this, I state that I have no fresh evidence; the larvæ are the same, their food-plant is the same, and their manner of feeding is as it was eight years ago. I expected to have the evidence of Mr. Newman and others to prove that they were one and the same, but it now appears that time, that great unfolder of events, must decide the question. One word before closing this subject, to Mr. Harpur Crewe; he says he knows nothing of the larva of P. Agestis, but thinks it ought to revel on the top of its food, as its brother P. Argiolus does, and is at a loss to conceive why I have condemned it to so hard a fate. I hereby inform Mr. Harpur Crewe that I had no hand in the matter, any more than he had in condemning P. Argiolus to be exposed on the top of a holly-tree when its brother was snugly ensconced under its food-plant; but it is such circumstances as these that prove a difference of species. One word more: I hope that this subject will set others on the look-out for the larvæ of P. Agestis; by this means we may arrive at the truth.—*H. J. Harding;* 1, *York Street, Bethnal Green, October* 14, 1858.

The Distinctive Differences between Polyommatus Agestis and P. Artaxerxes carefully considered. By G. Wailes, Esq.*

Let us now consider the points of distinction relied on. They seem to be,—*first*, the marginal band of orange spots; *secondly*, the black or white spot in the upper wings; and, *thirdly*, the ocellated or non-ocellated white spots on the under side. As to the first, there is no doubt that this band of orange spots is generally most fully developed in the southern localities; but the supposition, that it always decreases as we proceed northwards, is certainly erroneous; for some of the finest and most brilliant specimens in this particular that I have seen are from parts as far north as Liverpool, from our own district, and from Edinburgh; those from the two last localities bearing the white spot of P. Artaxerxes. We may therefore, I think, safely dismiss this band as any criterion of specific difference.

Next, as to the black or white spot on the upper wings. It would appear that throughout the continent of Europe, widely diffused as I shall hereafter show P. Agestis to be, not a single specimen has been recorded as deviating from the type, even in latitudes much colder than our own, whereas, in Britain, it extends northwards as far as our most northern local habitat, Bamborough, mingled from Richmond, in Yorkshire, with the Artaxerxes form. Even in the most southern parts of our island we have a few examples recorded which link the types together. The oldest I quote from Stephens' work, under P. Artaxerxes,—"I once observed it on Dartmoor, 23rd August. 1823. —*Dr. Leach;*" and Mr. Stainton, in his 'Manual,' under P. Agestis, says "A singular variety, with a white spot on the upper side, in the centre of the fore wings, was taken near Brighton, last July (1855), by Mr. H. Cooke. The under side agreed entirely with the ordinary appearance of P. Agestis. Mr. Bond, one of our best out-of-door naturalists, and an excellent Lepidopterist, informs me that he has occasionally seen a specimen in the South, with a small white spot on the wing." Mr. Vaughan says "he once took a specimen near Bristol, with a clear white ring round the black dot in the anterior wing;" and Mr. Sircom, in a communication to the 'Zoologist,' 1844 (Zool. 773), mentioned other similar cases in the South. From Yorkshire, northwards, these white-spotted specimens are numerous, and ultimately, it would seem, the only form we have. I think, therefore, we may reasonably conclude that the presence of a white or of a black spot will not suffice to establish the fact of there being two species.

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* In 'Catalogue of the Lepidoptera of Northumberland and Durham,' p. 29.

Finally, we have to consider the point of ocellated or non-ocellated spots on the under side; in other words, whether the absence or the presence of minute black dots in the centres of the white spots underneath be sufficient to divide the specimens into two species. I may premise that the presence of this black dot in the discoidal spot of the under side of the anterior wings destroys the Fabrician and Haworthian "puncto medio utrinque albo," as well as Stephens' "utrinque maculâ discoidali albâ," at once; and yet the latter author seems to have overlooked the fact that his variety β, as given above, necessarily had this effect! The examination of all our British Polyommati, with their varieties, and of the best figures of the European species, convinces me that the only spots or ocelli that are never wanting are those placed at the apex of the discoidal cell of each wing, and consequently, that either the absence or the presence of any one or more of the others, and, *à fortiori*, their having pupils or not, affords no unvarying specific character. I might enlarge upon this point, but refrain, and proceed rather to apply the proposition to the insect before us. Mr. Gregson, of Liverpool, one of our most observant Lepidopterists, is of opinion, founded on his long and wide-spread experience in collecting, that the full development, and also the brightness of the ocelli in these insects, depend much upon the warmth of the season of their appearance in the perfect state. According to this law, which certainly obtains amongst insects generally, when undisturbed by local causes, we might expect, and in fact find, that, in the southern form of P. Agestis, the ocelli are the most brilliant, having the black centres large and perfect. Still this is not always so, for not only are some of those centres suppressed, but in many cases one or more of the ocelli are entirely wanting. In our own locality, where the connecting form P. Salmacis of Stephens appears in any numbers, and where hundreds of specimens have passed through my hands, the majority bear the impress of the southern type, though few of them have the ocelli so brilliant as in specimens from that part of England. These ocellated specimens are not confined to such as have either the white or black discoidal spot on the upper side, but seem to occur indiscriminately. By far the most interesting variety I have yet seen of this butterfly is one in my own cabinet, which I captured in July, 1856, at Castle Eden, having the spot on the upper wing white, with a black centre. Underneath, the only spots within the orange band on its upper wings, are the discoidal —white, with a small black centre,—all the others being entirely obliterated on one wing; whilst, on the other, there is the sole addition of a most minute one between the third and fourth nervures. On both under wings, with the exception of the discoidal spot, and the usual triangular blotch, every trace of ocelli within the same band is wanting. Taking next the Scotch form, we find, that although the great bulk of the specimens have the black centres of the ocelli suppressed, still they are not always so; for not a few that I have examined possess them, and it is probable that one of these latter specimens furnished Mr. Stephens was his variety β. We see, therefore, that the variation of these ocelli, or spots, instead of furnishing a means of separating P. Agestis from the P. Artaxerxes, in reality links them together, and, by means of P. Salmacis, completes their identity. Thus we find all the three points of supposed specific distinction fail when rigidly tested, and the discovery of the larva of P. Agestis feeding on the Helianthemum alone needed to settle the point beyond doubt or question; for Mr. Bond informs me he has in his cabinet a chrysalis of the southern P. Agestis, which is exactly like one of P. Artaxerxes sent him by Mr. Logan. Nor do I think this discovery at all unlikely. The domestic habits, if the expression may be allowed, of the Polyommati are well known to all entomologists. They never roam far from home, like most of our butterflies, but confine their flight to a few yards around their native places. Now, Mr. Logan has proved the connection that exists between the larva of P. Artaxerxes and this plant, and I have traced the range of it and our P. Salmacis in conjunction therewith from Richmond to Kincardineshire. Let us notice how far a similar connection appears to hold good with P. Agestis. It is somewhat remarkable that long before the above facts as to P. Artaxerxes had even been suspected, the southern P. Agestis and the Helianthemum were associated together. Dr. Jordan, in a communication to the 'Zoologist' for 1844 (Zool. 348), on the occurrence on the Polyommati in South Devon, says "P. Agestis double-brooded, May and August; local; frequents rocky places in woods. I took it in considerable plenty in Bradley Woods, near Newton, Devon, settling on the flowers of the Helianthemum vulgare, though I did not see a single specimen until I came to the rock where this plant was growing." In reply to my inquiries as to this point, Mr. Cooke writes me, "I have never taken P. Agestis, except in localities where the Helianthemum grows freely. The wild geraniums do grow here (Brighton), and in many of the localities where P. Agestis is taken, but they occur only sparingly; and in one spot, where I take my finest specimens, and where indeed I caught the curious variety you allude to (mentioned above), I have reason to believe the geraniums do not grow at all." Further, I may add that Mr. Gregson, who has taken it in North Lancashire, Cheshire, Derbyshire, Yorkshire, Lincolnshire and Wales, says "I have never taken P. Agestis, except in localities where the Helianthemum grows." I might multiply these instances, but refrain. They are pretty strong indications that the larva of the southern form finds equally with the northern one a pabulum in this plant.

George Wailes.

Double-broodedness of Acherontia Atropos and Notodonta ziczac.—I have defined, in a previous number (Zool. 4902), my interpretation of the expression "single-brooded;" it is "when the cycle of animal life occupies an entire year." I admit that the state of imago, pupa, &c., *may occur twice* in the year in a single-brooded insect, but if all the four states occur *twice*, then is the species double-brooded. During the past unusually warm season the imago of Acherontia Atropos has appeared at two distinct seasons. Perhaps it always does so: this year there can be no doubt of the fact: these seasons were June and October; and, moreover, the June moths are unquestionably the parents of the October moths. Let A (first brood) be a female imago in June; it laid eggs on the potato: the eggs hatched in June, the larvæ fed in June, July and August; they became pupæ in September, and perfect moths, B (second brood), on the 1st of October. Here then, to all appearance, we have two broods in one year; and if I clearly understand Mr. Gascoyne's papers (Zool. 5826, 6248) this is what he would receive as conclusive evidence that Acherontia Atropos was double-brooded; but this is not so: the moths of June, 1858, were *a portion* of a brood which went down in September, 1857; and *a portion* of their progeny will, in like manner, survive the coming winter, it matters not whether as pupæ or perfect insects, and will appear on the wing in June, 1859. The state of egg occurs but once; the state of larva occurs but once; the state of pupa occurs twice. And there is even another possible source of error,—the moths which emerge in October may, and do occasionally, hybernate and re-appear in company with those of the summer disclosure in June. I would also beg to remind Mr. Gascoyne that, even supposing it proved most clearly that two cycles of existence were completed by a Notodonta in 1858, still the temperature of the past season having been abnormal, the rapid progress of insect transformations may have been abnormal also.—*Edward Newman; October* 1, 1858.

Sound produced by Larva of Acherontia Atropos: beautiful Variety of the same Insect.—In corroboration of a statement in the 'Zoologist' (Zool. 6212) on the sound produced by the larva of Acherontia Atropos, it may be worth while to add that the same power of uttering a sound was observed in some larvæ of A. Atropos this autumn: this sound was described to me by those who had charge of these caterpillars as a "short squeak," not easily described. Having never heard the sound myself I concluded that it was imaginary, but I think that the corroborating testimony of your correspondent now places the fact beyond a doubt. I had been intending to write on the subject of these larvæ, in consequence of the very remarkable appearance presented by some individual specimens found here this summer. I can merely relate this abnormal appearance as it was described to me, for, having been away from home, the larvæ had all buried before my return. Upwards of twenty larvæ were found in the neighbourhood and brought in, and of these four were of a uniform dark, dingy olive-black, underlaid with yellow, and frosted with bright white points; the three segments next to the head were of the purest white, like white linen, but marked with distinct, defined markings of velvety black; the general ground-colour and texture was described as much like that of a rhinoceros hide, but dark, and the rough frosting white; the three white segments next the head were smooth in texture; the lateral stripes were clearly defined, but black instead of blue, and differing from the ordinary larva in their being so disposed as to produce a series of diamond-shaped marks along the back. The colour was even and decided throughout, and had no connexion whatever with the slight brownish change of colour that larvæ assume just before burying.—*W. Oxenden Hammond; St. Alban's Court, near Wingham, September* 2, 1858.

Occurrence of Sphinx Convolvuli in Devonshire.—A specimen of this insect was taken at Teignmouth, Devon, a few days ago, and was given to me alive.—*P. H. Gosse; Torquay, September* 25, 1858.

Occurrence of Sphinx Convolvuli in the Metropolis.—On the 1st of October a male of this insect was taken in Liverpool Street, Bishopsgate; a second specimen at Stamford Hill on the 2nd; a third was brought here by a pressman: all these are now at No. 7, York Grove, Peckham.—*Edward Newman.*

Occurrence of Deilephila Galii at Brighton.—On the 3rd of September a large female specimen of D. Galii was brought alive to F. M. D'Alquen, Esq., of 8, Montpellier Terrace, in this town: he has kindly added it to my collection.—*John N. Winter; 28, Montpellier Road, Brighton, September* 24, 1858.

Query respecting a Caterpillar.—A large naked caterpillar infests the ash trees at a gentleman's seat in this district, by burrowing into the very heart of the wood throughout in channels. The insect is purplish black on the back, with the sides reddish yellow, and is in length from three to four inches. Several large trees are completely killed, and in cutting into and through the tree, the meandering course of the insect may be seen, presenting a complete honeycomb. What moth does it result in?—*Edward Hearle Rodd; Penzance, August* 26, 1858.

[Cossus ligniperda.—*E. Newman.*]

Zeuzera Æsculi feeding on Ash.—On the 23rd of June last Mr. Schofield and I obtained eighteen specimens of this insect from an ash tree, of which number six were males; we also saw the pupa-cases of about fifty others protruding from the bark of the same tree.—*W. Groves;* 12, *Morden Place, Lewisham Road.*

Double-broodedness of the Notodontidæ.—The paper on the double-broodedness of the Notodontidæ (Zool. 6248) brings to my mind some notes, which I thought of sending you when the subject was discussed before; and as there is probably at the present time the same indistinct perception of what is included in the phrase "double-brooded" as was so evident then, they may still be of use. A moth spends a portion of its life in four different stages, *viz.* egg, larva, pupa and imago; and when an insect is said to be "double-brooded" we understand that it passes through the whole of these four stages twice in the course of twelve months; and as some spend a long time in one of these stages and some in another, it is clear that evidence extending over only a few months can never prove this fact. For instance, to take the evidence brought forward by Mr. Gascoyne, which is almost as satisfactory as a single experiment on such a subject can be, that portion of the evidence which goes far to render it conclusive, I mean the hatching of the second brood of larvæ, is introduced almost parenthetically at the end of the paper, and the writer seems to have been hardly aware of its value: the evidence adduced in the body of the paper is that perfect insects which emerged about the end of May produced larvæ which fed up in July, and changed to perfect insects early in August: now these insects might have hybernated, or they might have laid eggs which would not hatch till the same time as those laid in May, or these eggs might produce larvæ which would remain half-fed through the winter and feed up with the spring larvæ; in either case, the double-broodedness is "not proven." To the last of these alternatives the evidence adduced is still open, and I hope Mr. Gascoyne will publish the results of his experiments when the cycle is complete, as he may feel assured that many who have taken no part in the controversy are watching it with interest.—*Thomas Boyd;* 17, *Clapton Square, N.E., October* 9, 1858.

Habits of Nudaria Senex.—I was not acquainted with the habits of this little insect till the other day. Happening to go down one evening (July 14th) to a marsh near here, I noticed a small pale moth, which I took to be a Crambus, flying over the tops of the rushes at twilight. I at once caught it, and found it to be N. Senex. On that and two or three other evenings, I took twenty or thirty. The female seems to be sluggish, for I only took two.—*H. Harpur Crewe; Stowmarket, August* 9, 1858.—*From 'The Naturalist.'*

Capture of Leucania vitellina at Brighton.—I send for your inspection what I believe to be a specimen of Leucania vitellina, which I took with my own hands at Brighton in September; two friends who were with me at the time saw it alive in my net. I have not compared it with Mr. Cooke's specimen, but think I am right in the name.—*T. Thorncroft;* 87, *North Lane, Brighton, October* 18, 1858.

[The insect is unquestionably Leucania vitellina.—*E. Newman.*]

Note on Nonagria Typhæ.—I met with seven or eight pupæ, and two or three full-fed larvæ last week, (July 20th), at Stowmarket, in the stem of Typha latifolia. It is not however common in this neighbourhood. I have noticed that though the larva feeds indiscriminately upon those plants that have flowers, and those that have not, and will sometimes completely hollow out the flower-stalk, it almost invariably forms its cocoon in a plant without a flower. The pupa must be kept very moist, or you will not breed the perfect insect. It is best, if possible, to cut off the stem with the pupa in it, but if it slips out, as it is very likely to do, the best plan is to lay it upon some damp earth, in a tolerably close-fitting tin box. I have seen the pupa so low down in the stalk, as to be partially submerged in the water. The perfect insect should always, if possible, be stuffed, as it is more subject to grease than perhaps any other moth, and will undergo numberless immersions in turpentine and magnesia without being cleansed. —*H. Harpur Crewe.—From 'The Naturalist.'*

Occurrence of Synia musculosa at Brighton.—On the 10th of August I had the good fortune to capture a female specimen of the above rare and beautiful insect; a friend with me the same evening took two others, male and female; the same friend a few days before took a female specimen of Pieris Daplidice; another person here on the 5th instant also took this insect, which I saw alive.—*T. Thorncroft; Brighton, August* 18, 1858.—*Id.*

Occurrence of Acronycta Alni near York.—In 1856 a larva of this species feeding on the willow, was taken in the Museum Gardens by Mr. Brown, which he succeeded in rearing the following year. On the 16th of August, 1857, I was equally fortunate in taking another in our garden, which fed on lime, from the pupa of which, on the 30th of last May, emerged a beautiful specimen of this rare insect. On the 13th ult. Mr. Prest found a fine larva, which went down a few days afterwards, and on the 29th ult. Mr. Robinson obtained a larva, which was found on a blade of grass, the only trees near it consisting of oak and the common nut. Mr. Allis has also met with this species near York. I may here remark that although the 'Manual' states that all the Acronycta larvæ spin cocoons, such was not the case with any of those which I now record, all the pupæ being *on* or *under* the earth, without the least appearance of a cocoon.—*Robert Anderson; Coney Street, York, September* 2, 1858.—*Id.*

Larva of Dasycampa rubiginea.—In the course of last month I bred four specimens of D. rubiginea, from eggs laid in a pill-box by a female, taken at sallows near Marlow, last spring. The larva, when full fed, is remarkably cylindrical, and tapering towards the head; the colour is a dark olivaceous-brown (not a yellowish brown); the hair is exceedingly fine, and shines like gold in the sun, and is confined to the sides, reminding one of the larva of A. megacephala, so that it appears almost a naked larva; the blackish spots on the back appear, at first sight, circular, but on examination are more nearly square, and are composed of two rhombi, divided by the dorsal line. The larvæ fed on the leaf of the Orleans plum, and were curiously concealed during the day-time among the leaves; so that, though I had them in a glass cylinder, I could seldom find more than one visible at a time. In regard to this species feeding on the plum, a very fresh specimen of the insect was taken near this place, on the bole of a damson tree, at sugar, and another specimen in an orchard, which facts are suggestive. The eggs appeared to hatch too early for the oak to be their common food. The perfect insect seldom appears here much before the end of October or beginning of November.—*B. Smith; Marlow, October* 5, 1858.—*'Intelligencer.'*

Occurrence of Xanthia ocellaris on the Coast.—No less than five of this insect have been taken this autumn: one by Mr. Tidy, on the 18th of September; one by Mr. Pratt, on the 21st; and one by Mr. Turner, on the 24th; all near Brighton: two by Mr. Harding, near Deal, about the same date. Mr. Smith, a Brighton collector, took the first specimen on the 6th of October, 1856; this is in the cabinet of the Rev. Mr. Image.—*Edward Newman; October* 1, 1858.

Larva of Ennomos fuscantaria.—I have bred seven specimens of E. fuscantaria from the egg, all males,—a circumstance which has occurred in another instance known to me, and which seems to indicate that the female is really scarcer in this species. The larvæ fed upon ash, but some of them were much earlier than others, the eggs hatching very late, and at considerable intervals. The markings described in the 'Manual' as belonging to this larva are by no means distinct, but almost obliterated, so that the appearance of the larva is that of a plain green looper, attenuated towards the head. The pupa is also green, suspended in a leaf, like that of E. angularia, and assuming purplish tints two days before it emerges.—*B. Smith; Marlow, October* 5, 1858.—*From the* '*Intelligencer.*'

The Genus Oporabia.—May I be permitted to ask Mr. Gregson, through the medium of the 'Zoologist,' if he is certain that the insect he calls Oporabia autumnaria (Zool. 6193), and which he says has been bred by Mr. Greening from larvæ on oak, is the autumnaria of Doubleday's 'List'? I have always understood that the insect therein indicated, and which we have been in the habit of calling autumnaria in this country, was a birch-feeder, and I have bred the insect to which I allude from this tree, the larva differing sufficiently from that of the common dilutata, but not I suspect equally from that of filigrammaria, which has been reared this season by Mr. Wilson from larvæ on heath. I should be much inclined to suspect that the insect bred from oak was, as suggested, a variety of O. dilutata.—*R. F. Logan; Duddingston, Edinburgh, October* 13, 1858.

Death of the Honey-bee supposed to be occasioned by a Fungus.—Mr. Martin, of Liverpool, makes the following communication to the Rev. Henry Higgins:—"In October last I had three hives of bees which I received into my house. Each doorway was closed, and the hive placed upon a piece of calico; the corners were brought over the top, leaving a loop by which the hive was suspended from the ceiling. The hives were taken down about the 14th of March; two were healthy, but all the bees in the third were dead: there were a gallon of bees. The two hives containing live bees were much smaller, but in each of them were dead ones. Under whatever circumstances you preserve bees through the winter, dead ones are found at the bottom in the spring. The room, an attic, was dry; and I had preserved the same hives in the same way during the winter of 1856. In what I may call the dead hive there was abundance of honey when it was opened; and it is clear that its inmates did not die from want. It is not a frequent occurrence for bees so to die, but I have known another instance. In that case the hive was left out in the ordinary way, and possibly cold was the cause of death. I think it probable that my bees died about a month before the 14th of March, merely from the circumstance that some one observed about that time that there was no noise in the hive. They might have died earlier; but there were certainly live bees in the hive in January. I understand there was an appearance of mould on some of the combs. There was ample ventilation, I think; indeed, as the bees were suspended, they had more air than through the summer when placed on the stand." Mr. Higgins makes the following observations on the above:—"When the occurrence was first made known to me, I suggested that the bees might probably have died from the growth of a fungus, and requested some of the dead bees might be sent for examination. They were transmitted to me in a very dry state; and a careful inspection with a lens afforded no indications of vegetable growth. I then broke up a specimen, and examined the portions under a compound microscope, using a Natchet, No. 4. The head and thorax were clean, but on a portion of the sternum were innumerable very minute, linear, slightly curved bodies, showing the well-known oscillatory or swaiming motion. Notwithstanding the agreement of these minute bodies with the characters of the genus of Bacterium of the Vibrionia, I regarded them as spermatia, having frequently seen others undistinguishable from them under circumstances inconsistent with the presence of Confervæ, as in the interior of the immature peridia and sporangia of Fungals. In the specimen first examined there were no other indications of the growth of any parasite; but from the interior of the abdomen of a second bee I obtained an abundance of well-defined globular bodies resembling the spores of a fungus, varying in size from ·00016 in. to ·00012 in. Three out of four specimens subsequently examined contained similar spores within the abdomen. No traces of a mycelium were visible; the plants had come to maturity, fruited, and withered away, leaving only the spores. The chief question then remaining to be solved was as to the time when the spores were developed; whether before or after the death of the bees. In order, if possible, to determine this, I placed four of the dead bees in circumstances favorable to the development of the spores, and in about ten days I submitted them again to examination: they were covered with mould, consisting chiefly of a species of Mucor, and one also of Botrytis or Botryosporium. These Fungi were clearly extraneous, covering indifferently all parts of the insects, and spreading on the wood on which they were lying. On the abdomen of all the specimens, and on the clypeus of one of them, grew a fungus wholly unlike the surrounding mould. It was white and very short, and apparently consisted entirely of spores arranged in a moniliform manner, like the fertile filaments of a stemless Penicilium. These spores resembled those found in the abdomen of the bees, and proceeded, I think, from them. The filaments were most numerous at the junction of the segments. The spores did not resemble the globules in Sporendonema Muscæ of the 'English Flora,' neither were they apparently enclosed."—*Proc. Linn. Soc.* 1857.

Black specimen of Cicindela campestris.—I have a Cicindela campestris which is entirely black, excepting the mouth and spots, which are of the usual cream colour. I wish to know if such a variety be uncommon or rare.—*Thomas Chapman; Bothwell Street, Glasgow, October* 26, 1858.

Reappearance of Scolytus rugulosus at Greenwich. — Scolytus rugulosus has again made its appearance, assuming the perfect state early in June. Cossus ligniperda and Trochilium Myopæforme have also emerged from the same pear-tree as that from which I obtained Scolytus rugulosus.—*W. Groves;* 12, *Morden Place, Lewisham Road, October*, 1858.

Beetles at Lee.—On the afternoon of the 12th inst. Dr. Power called on me, and proposed an excursion to the favourite hunting-ground known as "the sallow pit," in the fields at Lee. The pond, the beloved retreat of water-beetles, is no more,—the heat has been too much for it, and its fluids have evaporated. It might have been thought that the Hydradephaga had gone off to "fresh fields and pastures new," and so doubtless some of them have, but others, of a clannish nature, still hold on to the place of their nativity, their last refuge being a little hole containing about a pailful of water and a foot of mud. This reservoir, hidden by Sparganium, was accidentally discovered by a boy, who, while rushing away from some angry bees whose nest he had wantonly destroyed, put one of his legs into it as far as the knee; when he drew it out of the Stygian compound his equanimity was considerably disturbed as well as a quantity of carburetted hydrogen. But the scent that disgusted him delighted us two beetle-hunters; as his face fell our hopes rose, and our expectations were not disappointed, for out of the muddy hole four dips of the net brought about two dozen of Colymbetes Grapii. It was impossible to clean them, so they went, dirty as they were, into the prison ready for them, where they looked like veritable bottle imps. The other beetles fished out were few and of common species, so that the *élite* Grapii had had it all their own way in their elysium until they were so rudely intruded upon. By the time the net had been four times examined there was not light enough to distinguish any more of the black hexapods on so dark a ground, and although doubtless many more remained in the hole they got only a terrible fright. Just when the discovery of their retreat was made, we had become aware that the warm and still air was full of flying creatures rejoicing in the twilight; those that were caught were chiefly Hydrobii and Philhydri, but there were also a few good Staphylinidæ. To close this inverted story, I may say that we began our researches by hunting among the *débris* on the ground, and were rewarded with Stenus solatus, S. impressus and Anchomenus gracilis. When winter and water return, and the beetles are concentred in the tufts of grass, we hope to get more of these interesting species.—*J. W. Douglas; Lee; Sept.* 18, 1858.—*From* '*The Intelligencer.*'

Notes on Myrmecophilous Coleoptera.—I imagine that the interest of the entomologists of the Association may possibly be excited by the tolerably complete collection of the known British myrmecophilous insects. It is a group which until recently has been almost unknown to our naturalists, and embraces a considerable number of creatures which had hitherto escaped their researches. Most of these singular animals appear to spend their lives, sometimes in the immediate vicinity of the ants' nests, sometimes in the very heart of them; and although endowed with ample powers of flight, wander but little from their quarters. Hence it has has happened that a casual specimen has now and then fallen to the lot of the collector, and the greater part have been unknown, or known only as unique, or nearly unique, examples, and even their authenticity suspected. Messrs. Janson and Waterhouse acting as pioneers, Messrs. Reading, Edwin Shepherd, Douglas, myself, and sundry others, have, within the last few years, by carrying on the war in and about the nests themselves, brought to light many new species, or found others to be abundant which were previously almost unknown. Mr. Janson has in the 'Entomologists Annual,' of last year, published a most valuable account of the habits of these insects, and the mode of searching for them. I must say, however, that I cannot sympathise with him in his tender feelings towards these voracious hosts of our coleopterous favourites. According to my own experience, the spring, *i.e.* about April and May, is the most productive season for examining the nests of Formica rufa (which affords much the greatest number of insects) before the ants have actively begun their labours: the Coleoptera then seem to be accumulated in their immediate neighbourhood, instead of being scattered over a large extent of ground as they subsequently are. Soon after this period we often see the ants commence the process of gradually deserting an old and inconvenient nest, and taking up new quarters close by. I have found these old nests afford by far the best harvest of insects, which in the appetite for formic acid or its odour (apparently necessary to their constitution) congregate amongst the few remaining ants. If a few showers of rain should then fall and wash away the acid, the beetles entirely desert the nest. The most efficient plan of search with this nest is to place a few handfuls of the material taken from near the ants upon a somewhat fine cabbage-net, laid on a sheet of brown paper. Saprini, Dendrophili, &c., have a tendency when disturbed to make their way downwards, and if, after a short time, you lift the net to another part of the paper, you remove the *débris*, and leave the insects behind. The outskirts of the nests should also be well examined, as Mr. Janson describes, looking under stones, &c. The nests of Formica fuliginosa are more productive rather later, when the ants are in activity,—but the investigation is to be carried on chiefly in the *neighbourhood* of the nest, in damp places around it and where the ants run. The ground being stirred up the insects will appear if you watch for them. Little is usually to be obtained *in* the nest, which is generally in the trunk of an old tree. The nests of F. fusca, F. flava and Myrmica rubra afford but few species, and these are chiefly to be found in the galleries, under stones, &c. which may lie upon the nests. It is reasonable to expect that more species may be obtained by the examination of the nests of other ants, especially as the denizens of one kind appear seldom to associate with those of others. Formica fusca and F. flava seem to be the most convertible, *i. e.* you often find the same insects in both. In the nests of F. fuliginosa you almost invariably find something. In those of F. rufa you get many in some, but very many worth nothing. In those of F. flava, F. fusca and Myrmica rubra you may examine hundreds and get nothing. As yet we have obtained results from only a few species, *viz.*, Formica sanguinolenta, F. flava, F. fusca, F. fuliginosa, F. rufa and Myrmica rubra. I have set out specimens of the ants, and under each have placed the genera and species usually associated with them, and which may be expected to be found in their nests.—*J. A. Power.**

Locusts in Shetland.—The following is an extract from a letter, dated Lerwick, September 27, 1858:—“ Great numbers of the Locusta migratoria of Linneus have occurred in this far north during the present month, in the corn-fields and all the islands of any size, even in extreme Unst.” Great numbers have also been taken in Caithness.—*C. W. Peach; Wick.*

Occurrence of Locusta migratoria in Shetland.—A number of locusts were found last month, amongst corn-fields, in most of the Shetland Islands, as likewise in the bare and isolated Skerry Islands.—*Thomas Edward; Banff, October* 4, 1858.

[Similar information reaches me through a variety of channels, especially local newspapers: in some localities on the north-eastern coast and islands of Scotland this advent of locusts has amounted to a positive plague.—*E. Newman.*]

Note on Cydippe Pileus.—Yesterday I used a gauze tow-net unsuccessfully for two hours, so rolled it up and came ashore: on reaching home, seeing a pellucid drop clinging to the net, I floated it off in a glass of sea-water, and found it was a Beroe (*Cydippe Pileus*), which was evidently damaged by the compression of the net, and some of the bands of cilia were nearly obliterated. The creature seemed incapable of motion, save constant vibration of the remaining cilia. The next morning the globular form was gone, and more than half the animal was represented by an amorphous flocculent mass; the cilia on the crystalline portion were still in vigorous action: in an hour after the whole of it had sunk into the opaque flocculent condition, and all of course was still. It appeared as if death crept gradually over the creature, but perhaps the movement of the cilia should not be accepted as a proof of life, as it is well known that in the highest animals ciliary action will continue long after death. —*George Guyon; Ventnor, Isle of Wight, September* 29, 1858.

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* Read at the Meeting of the British Association for the Advancement of Science.

Infusoria on a Prawn. —The other day I observed the interior of the exuvia of a small prawn that was lying in a bottle of sea-water swarming with infusoria, which were no doubt attracted by some nutritive matter adhering to the shell. They had penetrated all the limbs; the legs were thronged, and some were disporting themselves in the very claws. But it was most curious to see them passing along the antennæ, which appeared as slender as a human hair; they were visible for two-thirds or three-fourths the length of the organ, but beyond that distance it was no longer navigable even for their minute frames, being but the $\frac{1}{150}$ inch diameter. The scene was a Temple Bar in miniature, and many an atom found himself too bulky to pass his comrade. One antennæ exhibited a slight monstrosity, the 44th joint being $\frac{1}{8}$ inch long, or equal to about six of the neighbouring joints.—*Id.*

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

October 4, 1858.—J. O. WESTWOOD, Esq. V.P., in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Biblotheca Historico-naturalis. Achter Jahrgang, von Ernst A. Zuchold;' presented by the Editor. 'Proceedings of the Zoological Society,' Nos. 350 to 362; by the Society. 'Proceedings of the Royal Society,' No. 32; by the Society. 'Mémoires d' Entomologie publiées par la Société Entomologique des Pays-bas, Livraisons,' 4, 5 and 6; by the Society. 'The Journal of the Society of Arts' for September; by the Society. 'The Zoologist' for October; by the Editor. 'The Literary Gazette' for September; by the Editor. 'The Athenæum' for September; by the Editor. 'The Natural History of the Tineina,' Vol. iii.; 'Manual of British Moths and Butterflies,' Nos. 20 and 21; 'The Entomologist's Weekly Intelligencer' for 1858; the same, No. 105; by H. T. Stainton, Esq. 'Monographie des Elaterides,' par M. E. Candize, Tome Premier; by the Author.

Election of Members.

R. H. Mitford, Esq., of Haverstock Place, Hampstead, was ballotted for and elected a Member; and W. H. Allchin, Esq., 7, Pembridge Villas, Bayswater, a Subscriber to the Society.

Exhibitions.

Mr. Stainton exhibited, on behalf of Mr. Boyd, some of the latter gentleman's most interesting captures in Cornwall this summer, interesting not merely as species new to our lists, but from the fact that some of these insects had only hitherto been found in the Mediterranean or at Maderia. The principal species exhibited were

1. *Diasemia Ramburialis*, of which Mr. Boyd had only taken a single specimen; this species was first detected in the Island of Corsica.

2. *Gelechia leucomelanella*, a conspicuous black and white species, hitherto known only as a native of Central Europe, bred from Silene maritima.

3. *Gelechia Cornubiæ*, n. s. (or a variety of Solutella); this was not scarce among the Cornish heath (*Erica vagans*).

4. *Gelechia Ocellatella*, n. s., bred from Beta maritima; this species had been obtained in Maderia by Mr. Wollaston.

5. *Glyphipteryx schœnicolella*, n. s., allied to G. oculatella; these were bred from the heads of Schœnus nigricans.

6. A series of *Elachista triseriatella* and *dispunctella*, clearly showing that those two species were merely forms of one and the same.

Mr. A. F. Sheppard exhibited, on behalf of Mr. C. S. Gregson, specimens of Peronea Potentillana, *Cooke*, recently described as a distinct species in the 'Zoologist'; Mr. Sheppard expressed his opinion that the insects in question were varieties of P. Schalleriana.

Mr. Edleston sent for exhibition a series of specimens, from which it was evident that the so-called species is a mere variety.

Mr. Stevens exhibited some beautiful butterflies taken by Mr. Wallace in Celebes, amongst which were both sexes of Ornithoptera Remus and O. Haliphron, Papilio Androcles, and two undescribed species of that genus, some fine Pieridæ, &c.

Mr. Bond exhibited two bred specimens of Xanthia gilvago, and an example of Agrotis saucia, in most perfect condition, which was infested by hundreds of a small Acarus, of a species unknown to the Members present.

Dr. Knaggs exhibited some Noctuæ, &c. lately taken at Camden Town, observing that the occurrence of such species close to the metropolis was interesting; they included Agrotis saucia, A. corticea, and A. ravida, Gortyna micacea, Eudorea Cembræ, &c.; he also exhibited some larvæ of a species of Dynastes, from Demerara, preserved in spirits, and a small female of a Termes from the same locality.

Mr. Stevens stated that he has recently been informed by a letter from Mr. H. W. Bates, that the small pale Scarites taken by him on the Amazons, and briefly characterized by Mr. Westwood, at the February Meeting of the Society, by the name of Solenogenys fæda, was an inhabitant of the nests of white ants.

Mr. Robinson exhibited specimens of Lamophlæus Clematidis, found in the stems of the Clematis Vitalba, near Gravesend.

Mr. Piffard exhibited a collection of insects, consisting chiefly of Coleoptera and Lepidoptera, which he had recently made in Nova Scotia and the vicinity of Demerara River.

Memoirs of the Entomological Society of the Netherlands.

Mr. Westwood called attention to the recently published 'Memoirs of the Entomological Society of the Netherlands,' as containing many beautiful figures and valuable papers; he observed that the long illness and subsequent death of Dr. De Haan had caused the collections at the Leyden Museum to be much neglected; he was, however, happy to say that his successor, Mr. S. C. Snellen van Vollenhoven, was going energetically to work, and had recently shown him some excellent drawings intended to illustrate the work before him. The Leyden Museum was particularly rich in the insects of the Indian islands, such as the industry of Mr. Wallace was now adding to our British collections.

Mr. Westwood added that the drawers containing the larger Lepidoptera in the collection alluded to were constructed with glass bottoms, the insects being pinned to narrow slips of cork affixed thereto; this plan obviated the necessity of taking out the specimens to examine the under side, as to do so it was only necessary to turn the drawer upside down.

Bees Feeding on Pollen.

Mr. Tegetmeier stated that with a view to prove more satisfactorily that bees devoured pollen in their perfect state, he had driven the stocks from two ordinary straw hives into one of his bee hives, placing in the box above it some old comb filled with pollen, which was speedily eaten by the bees, although as there was a quantity of syrup in the food-pan, they were certainly not driven to devour it from hunger: he exhibited the empty comb to the Meeting, observing that the only mention made by any writer on bees of pollen being eaten by the perfect insects was in 'Kirby and Spence's Introduction to Entomology.'

Mr. Tegetmeier added that Mr. Darwin has lately coloured the margin of some cells in the course of construction, and found that the bees remasticated the coloured wax and used it in the formation of the cells, thus proving that they can work up old material.

Cylindrical forms of Cells.

Mr. Smith observed that the theory advanced by Mr. Waterhouse in the 'Penny Cyclopædia,' of the bees first making cylindrical excavations, only separated from each other by the thickness of the walls of the intended hexagons at their points of contact, certainly in his opinion, would render it absolutely necessary that the bee, or wasp working, should be able to insert its head into the excavations, otherwise, how could they possibly form the planes of the hexagons? Now, that such could not be the case in building the cells of the wasp, he was prepared to prove. Mr. Smith exhibited the spring nest of Vespa vulgaris, in which the mother-wasp had constructed about thirty cells, seven only being carried up to their full height, which contained each a grub or a pupa, so that no worker had escaped; the cells being of such a size that by no possibility could the head of the builder be inserted into them; this, he contended, was in his mind decisive against the theory alluded to, at least it was not applicable to the building of the nests of the Vespidæ.

Mr. Smith also called particular attention to a singular fact, namely, that in the nest of the wasp the smallest cells were built in the spring nests by the largest individual, the female; whilst the largest cells, those required for the females and males, were built in the summer by the smallest individuals, the workers; now, as he understood the Waterhousian theory, the size of the planes of the hexagon, were determined by the distance the insects excavating could reach with its mandibles, if such were the case, how was it possible to reconcile the above facts with the theory of the 'Penny Cyclopædia.'

Mr. Westwood could not imagine how the female wasp constructed the beautiful little nest before the Meeting without inserting her head into the cells, but it evidently was quite impossible for the insect to do so, as stated by Mr. Smith.—*E. S.*

NORTHERN ENTOMOLOGICAL SOCIETY.

September 26, 1858.—B. COOKE, Esq., in the chair.

Election of Members.

Thomas John Moor, Esq., of the Derby Museum, Liverpool; George Turner, Esq., of the Royal Institution, Liverpool; John Johnson, Esq., of the Police Station, Old Swan, near Liverpool; and James Fitzgerald Brockholes, Esq., Cleveland Street, Birkhenhead, were elected Members.

Exhibitions.

Mr. Brockholes exhibited a Spælotes augur perfectly black, &c.

Mr. Almond exhibited very fine specimens of Tabanus bovinus, Tachina grossa, Volucella bombylans and Ptomophagus fumatus, recently captured near Loch Rannoch.

Mr. Cooper exhibited fine specimens of Agrotis saucia and Xanthia citrago, captured near Warrington, at sugar.

Mr. Kendrick exhibited a box, of all orders, in which were a number of very interesting species, especially amongst the Stegoptera and Homoptera.

Mr Birchall exhibited a most interesting box, the most noticeable of its contents was Noctua ditrapezium, fine as bred, taken at sugar, in Galway, in June.

The Secretary exhibited Eupithecia consignata, E. debiliata and E. pusillata, from H. Doubleday, Esq., and a new Tinea, bred in skins, from Honduras, given to him by Mr. Brockholes, who bred it, observing that no doubt this will soon propagate its species here to the annoyance of all "gude housewives;" it is allied to Nigrifoldella, but much smaller: he then exhibited a series of a new Tinea allied to Merdella, part of them bred by Mr. Greening, part captured by Mr. Cooper, and the remainder bred by himself, collected together for comparison with Merdella, from which it differs in its much darker colour, and the disposition of its markings and its dark head and under wings; it is a fine species: he then exhibited a box in which were specimens of Phibalapteryx angustata, *Haw.* (gemmata), kindly sent by Mr. Harding, of Bristol, and specimens of the same species taken by himself in the Crosby Swamps; also Coleophora affirmatella, *Greg.*, C. albidella, *H.-Sch.*, bred in plenty from cases on sallows, observing that many cabinets had this species as anatipennella, from which it differed in the form of its case and food, the latter making a fuller case on the under side, as illustrated in the box, and feeding upon sloe and thorn: he then called attention to a fine series of Gelechia fumatella, *Doug.*, which he had again met with after several years' vain search; it was raked out on dry banks on the sand-hills, where Ononis arvensis add Galium verum grew amongst wild thyme, but seemed atached to the liquorice.—*C. S. G.*

*Three Papers on the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection.**

1. Extract from an unpublished work on Species by C. Darwin, Esq., consisting of a portion of a Chapter intituled, "On the Variation of Organic Beings in a state of Nature; on the Natural Means of Selection; on the Comparison of Domestic Races and true Species."

DeCandolle, in an eloquent passage, has declared that all nature is at war, one organism with another, or with external nature. Seeing the contented face of nature, this may at first well be doubted; but reflection will inevitably prove it to be true. The war, however, is not constant, but recurrent in a slight degree at short periods, and more severely at occasional more distant periods; and hence its effects are easily overlooked. It is the doctrine of Malthus applied in most cases with tenfold force. As in every climate there are seasons, for each of its inhabitants, of greater and less abundance, so all annually breed; and the moral restraint which in some small degree checks the increase of mankind is entirely lost. Even slow-breeding mankind has doubled in twenty-five years; and if he could increase his food with greater ease, he would double in less time. But for animals without artificial means, the amount of food for each species must, *on an average*, be constant, whereas the increase of all organisms tends to be geometrical, and in a vast majority of cases at an enormous ratio. Suppose in a certain spot there are eight pairs of birds, and that *only* four pairs of them annually (including double hatches) rear only four young, and that these go on rearing their young at the same rate, then at the end of seven years (a short life, excluding violent deaths, for any bird) there will be 2048 birds, instead of the original sixteen. As this increase is quite impossible, we must conclude either that birds do not rear nearly half their young, or that the average life of a bird is, from accident, not nearly seven years. Both checks probably concur. The same kind of calculation applied to all plants and animals affords results more or less striking, but in very few instances more striking than in man.

Many practical illustrations of this rapid tendency to increase are on record, among which, during peculiar seasons, are the extraordinary numbers of certain animals; for instance, during the years 1826 to 1828, in La Plata, when from drought some millions of cattle perished, the whole country actually *swarmed* with mice. Now I think it cannot be doubted that during the breeding-season all the mice (with the exception of a few males or females in excess) ordinarily pair, and therefore that this astounding increase during three years must be attributed to a greater number than usual surviving the first year, and then breeding, and so on till the third year, when their numbers were brought down to their usual limits on the return of wet weather. Where man has introduced plants and animals into a new and favourable country, there are many accounts in how surprisingly few years the whole country has become stocked with them. This increase would necessarily stop as soon as the country was fully stocked; and yet we have every reason to believe, from what is known of wild animals, that *all* would pair in the spring. In the majority of cases it is most difficult to imagine where the checks fall, though generally, no doubt, on the seeds, eggs and young; but when we remember how impossible, even in mankind (so much better known than any other animal), it is to infer from repeated casual observations what the average duration of life is, or to discover the different percentage of deaths to births in different countries, we ought to feel no surprise at our being unable to discover where the check falls in any animal or plant. It should always be remembered, that in most cases the checks are recurrent yearly in a small, regular degree, and in an extreme degree during unusually cold, hot, dry, or wet years, according to the constitution of the being in question. Lighten any check in the least degree, and the geometrical powers of increase in every organism will almost instantly increase the average number of the favoured species. Nature may be compared to a surface on which rest ten thousand sharp wedges touching each other and driven inwards by incessant blows. Fully to realize these views much reflection is requisite. Malthus on man should be studied; and all such cases as those of the mice in La Plata, of the cattle and horses when first turned out in South America, of the birds by our calculation, &c., should be well considered. Reflect on the enormous multiplying power *inherent and annually in action* in all animals; reflect on the countless seeds scattered by a hundred ingenious contrivances, year after year, over the whole face of the land; and yet we have every reason to suppose that the average percentage of each of the inhabitants of a country usually remains constant. Finally, let it be borne in mind that this average number of individuals (the external conditions remaining the same) in each country is kept up by recurrent struggles against other species or against external nature (as on the borders of the Arctic regions, where the cold checks life), and that ordinarily each individual of every species holds its place, either by its own struggle and capacity of acquiring nourishment in some period of its life, from the egg upwards; or by the struggle of its parents (in short-lived organisms, when the main check occurs at longer intervals) with other individuals of the *same* or *different* species.

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* Reprinted from the 'Proceedings of the Linnean Society.'

But let the external conditions of a country alter. If in a small degree, the relative proportions of the inhabitants will in most cases simply be slightly changed; but let the number of inhabitants be small, as on an island, and free access to it from other countries be circumscribed, and let the change of conditions continue progressing (forming new stations), — in such a case the original inhabitants must cease to be as perfectly adapted to the changed conditions as they were originally. It has been shown in a former part of this work, that such changes of external conditions would, from their acting on the reproductive system, probably cause the organization of those beings which were most affected to become, as under domestication, plastic. Now, can it be doubted, from the struggle each individual has to obtain subsistence, that any minute variation in structure, habits or instincts, adapting that individual better to the new conditions, would tell upon its vigour and health? In the struggle it would have a better *chance* of surviving; and those of its offspring which inherited the variation, be it ever so slight, would also have a better *chance*. Yearly more are bred than can survive; the smallest grain in the balance, in the long run, must tell on which death shall fall, and which shall survive. Let this work of selection on the one hand, and death on the other, go on for a thousand generations, who will pretend to affirm that it would produce no effect, when we remember what, in a few years, Bakewell effected in cattle, and Western in sheep, by this identical principle of selection?

To give an imaginary example from changes in progress on an island:—let the organization of a canine animal which preyed chiefly on rabbits, but sometimes on hares, become slightly plastic; let these same changes cause the number of rabbits very slowly to decrease, and the number of hares to increase; the effect of this would be that the fox or dog would be driven to try to catch more hares; his organization, however, being slightly plastic, those individuals with the lightest forms, longest limbs, and best eyesight, let the difference be ever so small, would be slightly favoured, and would tend to live longer, and to survive during that time of the year when food was scarcest; they would also rear more young, which would tend to inherit these slight peculiarities. The less fleet ones would be rigidly destroyed. I can see no more reason to doubt that these causes in a thousand generations would produce a marked effect, and adapt the form of the fox or dog to the catching of hares instead of rabbits, than that greyhounds can be improved by selection and careful breeding. So would it be with plants under similar circumstances. If the number of individuals of a species with plumed seeds could be increased by greater powers of dissemination within its own area (that is, if the check to increase fell chiefly on the seeds), those seeds which were provided with ever so little more down would in the long run be most disseminated; hence a greater number of seeds thus formed would germinate, and would tend to produce plants inheriting the slightly better-adapted down.*

Besides this natural means of selection, by which those individuals are preserved, whether in their egg, or larval, or mature state, which are best adapted to the place they fill in nature, there is a second agency at work in most unisexual animals, tending to produce the same effect, namely, the struggle of the males for the females. These struggles are generally decided by the law of battle, but in the case of birds, apparently, by the charms of their song, by their beauty or their power of courtship, as in the dancing rock-thrush of Guiana. The most vigorous and healthy males, implying perfect adaptation, must generally gain the victory in their contests. This kind of selection, however, is less rigorous than the other; it does not require the death of the less successful, but gives to them fewer descendants. The struggle falls, moreover, at a time of year when food is generally abundant, and perhaps the effect chiefly produced would be the modification of the secondary sexual characters, which are not related to the power of obtaining food, or to defence from enemies, but to fighting with or rivalling other males. The result of this struggle amongst the males may be compared in some respects to that produced by those agriculturists who pay less attention to the careful selection of all their young animals, and more to the occasional use of a choice mate.

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* I can see no more difficulty in this than in the planter improving his varieties of the cotton plant.—*C. D.*, 1858.

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To appear very shortly,

AN ACCENTUATED CATALOGUE of the BRITISH LEPIDOPTERA, with Hints for the Derivations of the Names. Published by the Entomological Societies of Oxford and Cambridge.

John Van Voorst, 1, Paternoster Row.

WILLIAM DOVE respectfully informs Entomologists that he intends again collecting LEPIDOPTERA and COLEOPTERA in SCOTLAND during the ensuing Summer. He will be on the ground on the 20th of March, and will continue there until the 30th of August. He intends also to defray the Expenses of the Journey by Subscriptions; and he begs to state that any Gentleman subscribing £1 1*s.* shall receive one specimen of each species taken.

The Subscription List will remain open until the 1st of March, 1859; and Subscribers are requested to remit the money by Post-office Order, payable to WILLIAM DOVE, 28, Cross Street, Green Street, Bethnal Green, London, at the *Bethnal Green Post Office.*

DEPTFORD INSTITUTION

(Immediately adjoining the Railway Terminus at Deptford).

ON Wednesday, November 10, Mr. STAINTON will deliver a LECTURE on ENTOMOLOGY, at the above Institution, commencing at 8 P.M.

What are insects?—Parts of Insects—Breathing of Insects—Different Orders of Insects—Beetles or Coleoptera—The "Black Beetle" not a Beetle—The Dor-beetle, Cockchafer and Ladybird—Grasshoppers, or Orthoptera—Bees and Wasps, or Hymenoptera—Ichneumon flies—Dragonflies, or Neuroptera—Caddis-flies—Variety in the different Groups—Butterflies and Moths, or Lepidoptera—Bugs, or Hemiptera—Flies, or Diptera—Transformations of Insects—Changes undergone by the White Butterfly; by the Tiger Moth; by the Clothes Moth; by the Privet Hawk Moth—Caterpillars of Beetles; of Ichneumon flies; of Saw-flies; of House-flies; of Grasshoppers and Cockroaches—Recapitulation—Advantages of the Study of Entomology—"No time" a false excuse.

Admission to Non-Members 6*d.* each.

I hope every entomologist in London will support Mr. Stainton by his presence on this occasion: let us recollect what Mr. Stainton has done, and is doing, for Entomology, and let us show by our presence that we appreciate his labours. Mr. Stainton lectures gratuitously, and the small admission fee charged at the doors goes entirely to the benefit of the Institution. Trains leave London Bridge Station every twenty minutes: entomologists should be there at 7·30. The trains start from the extreme left hand of the Station.

EDWARD NEWMAN.

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